The project is mainly aimed at detecting the gas flow rate in Biosensors and medical health applications by means of an acoustic method using whistle based device. Considering the challenges involved in maintaining particular flow rate and back pressure for detecting certain analytes in breath analysis, the proposed system along with a cell phone provides a suitable way to maintain the flow rate without any additional battery driven device.

To achieve this, a system-level approach is implemented which involves development of a closed end whistle which is placed inside a tightly fitted constant back pressure tube. By means of experimentation pressure vs. flow rate curve is initially obtained and used for the development of the particular whistle. Finally, by means of an FFT code in a cell phone the flow rate vs. frequency characteristic curve is obtained. When a person respires through the device a whistle sound is generated which is captured by the cellphone microphone and a FFT analysis is performed to determine the frequency and hence the flow rate from the characteristic curve. This approach can be used to detect flow rate as low as low as 1L/min. The concept has been applied for the first time in this work to the development and optimization of a breath analyzer.